

Application Serial No. 09/856,815

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Date March 12, 2004

Reply to Office Action dated December 15, 2003

In the claims:

1. (Currently Amended) A device for detecting particles on a windshield of a motor vehicle with a radiation source which emits optical rays onto the windshield with a photodetector which receives a portion of the rays emitted onto the windshield, and with a single control unit, which manages the radiation source and analyzes the rays received by the photodetector characterized in that the radiation source is positioned outside the field of vision of a driver of the vehicle and is aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike and wherein the single control unit is operable to selectively control at least one of an intensity, duration and frequency of a first ray emitted by the radiation source and is operable to analyze the first ray for purposes of detecting the presence of particles on the windshield of the motor vehicle when at least a portion of the first ray is received by the photodetector based, at least in part, on the one of the previously controlled intensity, duration and frequency of the first ray.

2. (Previously Presented) The device in accordance with claim 1, wherein the radiation source is formed as a light-emitting-diode.

3. (Previously Presented) The device in accordance with claim 1, wherein the photodetector includes several receiving units.

4. (Previously Presented) The device in accordance with claim 3, wherein the receiving units are formed as optoelectronic arrays.

5. (Previously Presented) The device in accordance with claim 3, wherein means are located in the direction of propagation of the beams reflected from the particles in front of the receiving units for focusing the beams.

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6. (Previously Presented) The device in accordance with claim 5, wherein the means for focusing the beams are formed as lenses.

7. (Previously Presented) The device in accordance with claim 1, wherein the radiation source emits optical rays with a wavelength of about 350 nm to 800 nm.

8. (Previously Presented) The device in accordance with claim 1, wherein the radiation source emits optical rays with a wavelength in the infrared range.

9. (Previously Presented) The device in accordance with claim 1, wherein the control unit manages the radiation source in such a way that the type of particles can be determined from the rays received by the photodetector.

10. (Cancelled)

11. (Previously Presented) The device in accordance with claim 1, wherein the device is an integral part of an interior light module in the vehicle.

12. (Previously Presented) The device in accordance with claim 1, wherein the device is an integral part of a rearview mirror module in the vehicle.

13. (Previously Presented) The device in accordance with claim 1, wherein the device is connected over a bidirectional data bus to a superordinate control unit in the vehicle.

14. (Previously Presented) The device of claim 1 wherein the control unit is operably associated with a windshield cleaning system of the vehicle

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such that the windshield cleaning system is activated when the control unit detects dirt on the windshield.

15. (Previously Presented) The device of claim 1 wherein the photodetector further comprises:
a CCD image converter.

16. (Previously Presented) The device of claim 2 wherein the light emitting diode is operable to emit optical rays having different wavelengths.

17. (Previously Presented) The device of claim 2 wherein the light emitting diode is operable to emit optical rays having different intensities.

18. (Previously Presented) The device of claim 2 wherein the light emitting diode is positioned such that the optical rays strike the windshield at a similar angle with respect to a driver's line of sight.